

OUR BOOK SHELF.

Index of British Plants, arranged according to the London Catalogue (Eighth Edition), including the Synonyms used by the Principal Authors, &c. By Robert Turnbull. Pp. 98. (London: George Bell and Son, 1889.)

THIS alphabetical synonymic list of British flowering-plants and vascular Cryptogamia is similar in general plan to that which was published about a year ago by Mr. Egerton-Warburton, which we noticed at the time of its issue (NATURE, vol. xl. p. 306). The author uses as a basis the last edition of the London Catalogue, and gives the synonyms of all the species that are described under different names in "English Botany," Bentham's "Hand-book," Babington's "Manual," Hooker's "Student's Flora," "British Wild Flowers," Lindley's "Synopsis," Hooker and Arnott's "British Flora," Withering's "Arrangement," Notcutt's "Hand-book," and Hayward's "Pocket-book." The author has carried out his task very carefully, and has added an English name for each species, and given at the end a list of English names in alphabetical order. Two things lately have combined to cause considerable change in plant-names, the revision and redescription of the genera by Bentham and Hooker, and the increased attention which has been paid in tracing out priority by Mr. Daydon Jackson and Mr. Britten in England, and by Ascherson, Nyman, and many other writers on the Continent. We have noted a few slips in turning over the pages. For instance, there are only two native species of *Achillea*, not five—*decolorans*, *serrata*, and *tanacetifolia*, being manifest introductions. No wonder the author has not been able to refer some of the older bramble names to their London Catalogue synonyms. *Guntheri*, Bab., and *salmum*, Foche, are both synonyms of the plant called *flexuosus* in the London Catalogue. The book will be found useful to many collecting botanists scattered up and down the country who have been puzzled to understand what was intended by many of the newly-introduced names. J. G. B.

Practical Observations on Agricultural Grasses and other Pasture Plants. By William Wilson, Jun. (London: Simpkin, Marshall, and Co., 1889.)

MR. WILSON tells us that "agriculturists have allowed themselves to run too much after a channel of indoor investigations." We do not know that this has been a fault in agriculturists, and are not convinced of the fact. Mr. Wilson appears to have omitted to acquire one important accomplishment in a writer on any subject—namely, the power of writing intelligibly. He tells us that "soil may be described as earthy matter on the surface of the globe"; that "climate has been described as a very complex matter, depending on a great variety of conditions"; but he does not say by whom it has been so lucidly "described." We are told that "sweet-scented vernal grass is one which most writers on grasses give a place as a useful grass, but not very definite as to what place it belongs, as it is not very readily eaten in some parts where there is a considerable quantity of it." Speaking of rough-stalked meadow-grass, he says:—"The Rev. J. Farquharson, F.R.S., mentions in his paper, which I have previously spoken of, as having cultivated it successfully on such soil, testifies as to the fondness of animals—both cattle and horses—for it, both as pasture and hay." Again, he informs us that "the fact has been pretty well borne out that a great fault has been to look at cultivation too much in the light of a matter which has been thoroughly investigated, when in reality it has little more than reached its infancy." Now, with all respect to Mr. Wilson, it appears to us to be mere cant to talk of the most ancient of all arts as having only reached its infancy. The style in which this little eighteen-penny book is written

is poor and obscure, and the above quotations may be considered as fair samples of it. For instance, the eye falls by chance on the following passage (p. 70):—"The results of my observations have led me to the same conclusion as Mr. Sinclair—am of opinion that a mixture of it (*sic*) on dry soil would prove satisfactory, but should not be sown on clay moist soil." That this work should have reached a second edition is certainly strange, and appears to indicate that the agricultural palate is, as yet, particularly fresh. It must require a good deal of open-air exercise to enable a reader to digest Mr. Wilson's crudities.

W.

The State. Elements of Historical and Practical Politics. By Woodrow Wilson, Ph.D., LL.D. (Boston, U.S.A.: Heath and Co., 1889.)

THIS work may be regarded partly as a text-book of political science adapted to the education of the young, partly as a repertory of what the writer calls "governmental facts," useful to readers of all ages. In the first part of his task Mr. Wilson has encountered great difficulties. He has no predecessors in whose steps to follow. Also the loose mass of facts and opinions which make up what is called political science does not admit of being compressed with safety. Again the class to whom Mr. Wilson offers a highly concentrated intellectual pabulum are little able to assimilate this species of nutriment even in its most digestible form. The young man, says Aristotle is not fit to be a student of political science. These difficulties appear to have been surmounted by Mr. Wilson better than might have been expected. He avoids the dogmatism to which short catechisms are liable. For instance in his section on the probable origin of government he does not rule that the earliest constitution of the family was patriarchal, or "matriarchal," as we believe it is now the fashion to say. While inclining to the former view he presents also the latter; and gives references by the aid of which the enquiry can be pursued. He stimulates curiosity and affords the means of gratifying it. The "evolution of government" is traced from the origin of the Aryan family through the changing types of Greek and Roman governments. This "institutional history" is somewhat dry; but the writer expects that the topical skeleton furnished by him will be clothed upon by the lessons of the intelligent teacher. Coming to modern times, we find a description of the principal pieces of political machinery which are now in use in the civilized world. This compilation seems to serve the purpose of a sort of magnified "Whittaker." If anyone who has not exhausted the subject of Home Rule wishes to refresh his memory as to the relations between Austria and Hungary or Sweden and Norway, he can here look out, as in a political dictionary, the main facts. We come nearest to the "practical politics" announced in the title in the chapter which discusses what are the proper objects of government. "This," says Mr. Wilson with much good sense, "is one of those difficult problems upon which it is possible for many sharply opposed views to be held apparently with almost equal weight of reason . . . It is a question which can be answered, if answered at all, only by aid of a broad and careful wisdom whose conclusions are based upon the widest possible inductions from the facts of political experience in all its phases." Mr. Wilson's solution of what Burke has called the "finest problem in legislation" is thus stated:—"It should be the end of government to *accomplish the objects of organized society*. . . . Not licence of interference on the part of government, only strength and adaptation of regulation. The regulation which I mean is not interference, it is the equalization of conditions, so far as is possible, in all branches of endeavour." Perhaps this teaching would have been more impressive if the writer, condescending to particulars, had discussed pretty fully any one question such as whether in any assigned country, the railways ought to be managed

by the state. Once more however we admit that the scope and limits of his work have imposed upon him almost insuperable difficulties.

Introductory Lessons in Quantitative Analysis. By John Mills and Barker North. (London: Chapman and Hall, 1889.)

THIS book of eighty-five pages is the first part of a larger work by the same authors, which will shortly be published. It is designed mainly for the use of "students in evening classes who have but little time to spare in acquiring such knowledge," and also to be of service for the Science and Art Department examination, as well as those of London University. The descriptions contained in the three chapters constituting the book, and which treat of preliminary operations, gravimetric analysis, and volumetric analysis, respectively, are meagre in the extreme, and lack many details essential to a primer. Slips and loose statements are numerous. For example, the student is led to infer that the ash of *any* of Schleicher and Schüll's filter-papers is negligible. Lead is estimated by means of "bichromate of potash," which is formulated as K_2CrO_4 . On p. 62 the authors assert that "Normal solutions of univalent substances like iodine, silver nitrate, sodium chloride, &c., contain *their molecular weight* in grams in one litre." Whatever be the meaning attached to this, it is in no way confirmed by what follows on p. 63—namely, that "The *atomic* weight of iodine being 126.5, a normal solution would contain *this* number of grams in one litre."

The general scheme of work set out in the lessons is satisfactory, and if carefully elaborated might be useful. In its present condition, however, the effect of the book on the beginner cannot be other than confusing.

LETTERS TO THE EDITOR.

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Note on a Probable Nervous Affection Observed in an Insect.

WHILST walking in the garden one bright September morning, my attention was called to a moth fluttering in a peculiar manner on the ground; it kept going round and round in a circle, running with its feet on the stones, its wings meanwhile being in rapid motion.

I captured the insect, which proved to be a quite fresh specimen of a male *Orgyia antiqua* (vapourer moth), of which there were many in the garden.

I replaced the insect without injury on the path, and watched it more closely.

The movements of the wings were irregular, convulsive, and very rapid in character; the feet and body were also in rapid movement, resulting in a circular motion of the whole insect from right to left—that is, in the same direction as the movements of the hands of a watch.

I again captured the insect, thinking that perhaps one of its antennæ might have been injured; but on careful examination with a hand lens, I could detect no lesion nor the presence of any parasite which might account for the condition.

I again placed the insect on the path, when it immediately began to rotate as before. It seemed unable to keep still, though evidently trying to do so.

Occasionally it would wedge itself in between two or more small stones, with its head downwards, and the under surface of its body upwards, its wings resting on the stones below; in this position it appeared to obtain some relief, as the movements were less continuous, though every breath of wind caused a

convulsive twitching of the wings and body. On one occasion a leaf fell upon the insect whilst wedged in, causing a very violent convulsion of the whole insect, by which it was jerked quite out of its retreat, when the gyrating movements at once began again.

I tried stroking the antennæ with the point of a pencil, but this had no effect, nor could I obtain cessation of movement by stroking the body or the wings; on the contrary, when the insect was wedged in each touch caused a convulsion, varying with the intensity of the stimulus applied.

These movements continued without interruption for fully forty minutes, the insect gyrating in a space about a foot square. At the end of that time I placed it upon a piece of smooth paper, when the movements became more rapid and the gyrations less ample, it completing a turn in much less time than on the stones, owing, no doubt, to there being no projections on the paper to cause the insect to deviate.

I then placed it in a shallow cardboard box in the full sunlight, but protected from the wind. In this way the convulsive movements were less intense and less frequent; the insect, however, was often jerked over on to its back, then, after a struggle or two, would right itself, and begin to go round. When, however, it managed to press the top of its head against the side of the box, so that its antennæ were pressed between the head and the side of the box, all movement ceased till some external stimulus again set it in motion.

At the end of one hour the insect seemed quite exhausted, a strong stimulation being required to develop one convulsion.

On examination I found that it had worn away, in its movements, all its legs with the exception of the left hind leg, which was apparently pretty intact, and had broken both its wings on the right side, so that the greater part of them hung useless over its body.

After a few more violent convulsions, the upper wing of the right side was broken off, and the insect now began to revolve from left to right, owing, I suppose, to the movements of the left leg; the others being reduced to mere stumps would have little power of propelling the insect.

About twenty minutes later, during a convulsion, the right hind wing was broken off.

Shortly afterwards I noticed that the convulsive movements of the antennæ, which had been slight up to that time, were much increased; indeed, they were moving so rapidly as to have the appearance of two small black wings.

One hour and fifty-five minutes after I first noticed the insect all convulsions had ceased; no stimulus could excite any; the moth was dead.

Conclusion.—The insect, suffering from no apparent injury, and being attacked by no internal or external parasite, was, I believe, suffering from some nervous lesion. I was unfortunately unable to examine the insect microscopically to ascertain if the nervous centres exhibited any pathological characters.

E. W. CARLIER.

Does the Bulk of Ocean Water increase?

THE idea was, I think, suggested by myself, and has been referred to with approval by Mr. Jukes-Browne, that much of the water on the surface of the globe was originally occluded in the molten interior, and has been emitted by volcanic action in the course of ages. Mr. Mellard Reade argues against this, that the moon is covered with volcanic craters, and yet has no water on its surface, and that if the accumulation of surface water has followed volcanic action on the earth, it ought likewise to have done so on the moon. He concludes:—"At all events, it seems a reasonable question to ask why oceans should be supplied with water from the perspiring pores of mother earth, while her offspring, the moon, is so dry as to have absorbed into herself all evidence of any aqueous envelope that may have formerly existed."

It is a singular coincidence that one possible answer to this objection is suggested by a notice in the "Astronomical Column" of the same number of NATURE which contains Mr. Reade's letter. Therein Prof. Thury attributes apparent changes in the aspect of a lunar crater to the melting of snow or ice around it. Neither is he the only selenologist who thinks that those crater-rings consist more or less of frozen water. If they do so, then there *is* water on the moon, although in a solid state. On the other hand, Proctor, in his work on the moon, says that her